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ABSTRACT

A study was conducted to determine: (1) whether language-impaired children have deficient paraphrase capabilities; (2) whether these deficiencies are both qualitative and quantitative; and (3) whether these abnormal skills are detrimental to normal linguistic growth. Forty-eight children from grades 1,3,5, and 7, with language impairments for which there was no identifiable cause, were given a paraphrase production and a paraphrase recognition task. Their performance was compared to that of a matched group of children with normally developing language. The language-impaired children produced and recognized fewer correct paraphrases, and they relied on a strategy of lexical substitution for paraphrase production for a longer time. In addition, they produced more repetitions and antonymic responses than the normally developing children, and some used a "preservation of quantity" strategy. An error analysis indicated that the paraphrase strategies of language-impaired children were qualitatively as well as quantitatively different from those of normally developing children. These strategies tend to hinder normal linguistic development. Further studies should involve a natural communication setting, as well as pragmatics and body language. (Author/AM)

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PARAPHRASE CAPABILITIES OF LANGUAGE IMPAIRED CHILDREN[1]

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Impaired language development can result from a variety of causes, e.g. deafness, mental retardation, psychological disturbances, and brain damage. Some children suffer from language impairment for which there is no identifiable cause. These children have normal hearing, normal vocal tracts, and normal intelligence (as measured by standardized non-verbal tests); moreover, they do not have any clinical manifestations of brain damage nor do they exhibit any psychiatric disturbances. Studies of the phonological, syntactic, and semantic capabilities of these children show that their language differs quantitatively and qualitatively from that of children who are developing language normally. Menyuk (1969, 1971) found that the linguistic strategies of these language impaired children are detrimental to normal linguistic development. Whether their metalinguistic strategies are also qualitatively and detrimentally different has not been determined. Indeed, researchers of child language have only recently begun a systematic investigation of the metalinguistic capabilities of normally developing children.

Some researchers of child language consider metalinguistic capability to come late in the course of a child's language development, probably occurring around adolescence (Papandropoulou and Sinclair, 1974). However, other researchers have shown that even very young children have metalinguistic capability, and suggest that some metalinguist capability is necessary for normal language development (Gleitman, Gleitman, and Shipley, 1972).

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ED 038/12/77

One important metalinguistic skill is the ability to recognize and produce paraphrases, that is, to maintain semantic constancy in spite of syntactic rearrangement or lexical substitution. There are two major linguistic functions of paraphrase. First, it is a means of communicating effectively. For example, when a listener does not understand part of a conversation, the speaker will often paraphrase the message:

S: I want you to be punctual.

L: Huh?

S: I mean you have to be on time.

Second, paraphrase also plays an important role in language development. For example, studies of language input to young children (e.g. Snow, 1972) show that paraphrase ("semantic repetition") is a common aspect of the input register. Snow postulates that paraphrase enables the child to appreciate the arbitrary relationship between sound and meaning by demonstrating that a particular semantic unit may be expressed by more than one set of phonological units. A logical corollary of Snow's postulation is: If a child can recognize and produce paraphrases, he is able to master pronouns and a greater variety of syntactic transformations and to increase his vocabulary.

Because paraphrase is a useful tool for communication and for language development, a child whose paraphrase skills are deficient would be handicapped in his efforts to develop language and communication skills. This study, therefore, asks:

1. Do language impaired children have deficient paraphrase capabilities?

2. If language impaired children do have deficient paraphrase skills, are these deficiencies both qualitatively and quantitatively different?
3. If language impaired children do use qualitatively different paraphrase skills, would these non-normal skills be detrimental to normal linguistic growth?

In order to answer these questions, 48 language impaired and 48 normally developing children from grades 1, 3, 5, and 7 were asked to produce and to recognize paraphrases. The language impaired children were public school children with normal hearing and normal intelligence, as measured on standardized non-verbal tests. They had no vocal tract abnormalities, no clinical manifestations of brain damage, and were not receiving psychiatric care. In short, there seemed to be no known cause for their language impairment. The normally developing children were matched for grade level, sex, and non-verbal intelligence with the language impaired children.

Production Task First the investigator determined that each child understood the concept of paraphrase. Then she asked the child to produce paraphrases for 18 sentences (See Table 1). This task was conducted orally and each child was interviewed individually. All of the sentences in this stimulus set were simple sentences with a lexicon which would not be too difficult for a first grader. Each of the three syntactic types was presented in two variations: 1-2 Adverb Initial, 4-6 Adverb Final; 7-9 Active, 10-12 Passive; 13-15 Prepositionally Marked Indirect Object, 16-18 Prepositionally Unmarked Indirect Object. By presenting each syntactic variation three times,

ED 838/12/77

TABLE 1

STIMULUS SENTENCES FOR PRODUCTION TASK

	INTRANSITIVE
1.	Yesterday the large elephant got hurt.
2.	This afternoon the dirty car got washed.
3.	Last night the tiny puppy was crying.
4.	The small baby stood up this morning
5.	The fat lady was dancing last night.
6.	The thin girl fell down last week.
	TRANSITIVE
7.	The dancer kicked the small football.
8.	The fireman cooked the thin carrots.
9.	The mailman pushed the dirty cart.
10.	The fat pumpkin was carved by the farmer.
11.	The large apple was eaten by the rabbit.
12.	The tiny tree was bumped by the elephant.
	INDIRECT OBJECT
13.	Joan baked some large cookies for Bill.
14.	Bill gave some small cars to Joan.
15.	Bill made a tiny bowl for Joan.
16.	Joan took Bill a thin valentine.
17.	Bill sold Joan a fat goldfish.
18.	Joan showed Bill the dirty dishes.

ED 838/12/77

it was possible to get a more accurate picture of a child's capabilities than would have been possible with each syntactic variation presented only once. The 18 sentences of this stimulus set were presented in random order.

The child's responses were assigned to one of four categories:

a. lexical paraphrase (e.g. Bill gave some small cars to Joan was paraphrased as Bill gave some little cars to Joan),

b. syntactic paraphrase (Bill gave Joan some small cars),

c. combination lexical-syntactic paraphrase (Joan got some small/little cars from Bill), or

d. non-paraphrase (Joan gave Bill some small cars).

Recognition Task: In the Recognition Task, which always followed the Production Task, each of the 18 sentences was accompanied by a set of three possible paraphrases (See Table 2). Each set of proposed paraphrases was composed of a lexical paraphrase, a syntactic paraphrase, and a pseudo-paraphrase. Each of the 18 stimulus sentences was printed on a strip of paper, which was folded and placed in a plastic bowl. The child would shake the bowl and draw a strip of paper, which he would unfold and read (if a child was not able to read the sentence, the investigator would read it with him or simply read it first and the child would repeat it, usually while looking at the printed sentence). The investigator then refolded the sentence and placed it aside, while saying "That's interesting" or "That's one of my favorites," etc. This was done to interfere with the child's memory of the

TABLE 2

STIMULUS SET FOR RECOGNITION TASK

INTRANSITIVE

1. Yesterday the large elephant got hurt.
   Yesterday the big elephant got hurt. (Lexical)[2]
   The large elephant got hurt yesterday. (Syntactic)[3]
   Yesterday the large elephant got lost. (Pseudo-paraphrase)[4]

2. This afternoon the dirty car got washed.
   This afternoon the filthy car got washed. (L)
   The dirty car got washed this afternoon. (S)
   This afternoon the dirty car crashed. (PP)

3. Last night the tiny puppy was crying.
   Last night the little puppy was crying. (L)
   The tiny puppy was crying last night. (S)
   Last night the tiny puppy was tired. (PP)

4. The small baby stood up this morning.
   The little baby stood up this morning. (L)
   This morning the small baby stood up. (S)
   The small baby threw up this morning. (PP)

5. The fat lady was dancing last night.
   The plump lady was dancing last night. (L)
   Last night the fat lady was dancing. (S)
   The fat lady was singing last night. (PP)

6. The thin girl fell down last week.
   The skinny girl fell down last week. (L)
   Last week the thin girl fell down. (S)
   The thin girl was playing last week. (PP)

7. The dancer kicked the small football.
   The dancer kicked the little football. (L)
   The small football was kicked by the dancer. (S)
   The dancer kicked the small pillow. (PP)

8. The fireman cooked the thin carrots.
   The fireman cooked the skinny carrots. (L)
   The thin carrots were cooked by the fireman. (S)
   The fireman ate the thin carrots. (PP)

2-Hereafter (L)
3-Hereafter (S)
4-Hereafter (PP)

TABLE 2 - CONT'D

9. The mailman pushed the dirty cart.
   The mailman pushed the filthy cart. (L)
   The dirty cart was pushed by the mailman. (S)
   The mailman drove the dirty car. (PP)

10. The fat pumpkin was carved by the farmer.
   The round pumpkin was carved by the farmer. (L)
   The farmer carved the fat pumpkin. (S)
   The fat pumpkin was planted by the farmer. (PP)

11. The large apple was eaten by the rabbit.
   The big apple was eaten by the rabbit. (L)
   The rabbit ate the large apple. (S)
   The large apple was found by the rabbit. (PP)

12. The tiny tree was bumped by the elephant.
   The little tree was bumped by the elephant. (L)
   The elephant bumped the tiny tree. (S)
   The tiny tree was kicked by the elephant. (PP)

13. Joan baked some large cookies for Bill.
   Joan baked some big cookies for Bill. (L)
   Joan baked Bill some large cookies. (S)
   Joan bought some large cookies for Bill. (PP)

14. Bill gave some small cars to Joan.
   Bill gave some little cars to Joan. (L)
   Bill gave Joan some small cars. (S)
   Bill showed some small cars to Joan. (PP)

15. Bill made a tiny bowl for Joan.
   Bill made a little bowl for Joan. (L)
   Bill made Joan a tiny bowl. (S)
   Bill bought a tiny bowl for Joan. (PP)

16. Joan took Bill a thin valentine.
   Joan took Bill a skinny valentine. (L)
   Joan took a thin valentine to Bill. (S)
   Bill took Joan a thin valentine. (PP)

17. Bill sold Joan a fat goldfish.
   Bill sold Joan a chubby goldfish. (L)
   Bill sold a fat goldfish to Joan. (S)
   Bill gave Joan a fat goldfish. (PP)

18. Joan showed Bill the dirty dishes.
   Joan showed Bill the filthy dishes. (L)
   Joan showed the dirty dishes to Bill (S)
   Joan took Bill the dirty dishes. (PP)

ED 838/12/77

sentence. The sentence was then re-presented orally, as were the sets of proposed paraphrases.

Results and Discussion: The data were analyzed with a 2 X 4 ANOVA with repeated measures, and showed that normal vs. impaired development was a significant factor both in actual proficiency and in attempted strategy:

1. At each grade level language impaired children produced significantly fewer correct paraphrases than did normally developing children ($F(1,88) = 42.5$, $p < .001$), and both groups showed little increase in proficiency between fifth and seventh grades. Language impaired fifth and seventh graders produced essentially the same number of correct paraphrases as normally developing third graders did, and language impaired third graders produced slightly fewer than normally developing first graders.
2. Until fifth grade, language impaired children were more likely to attempt to produce paraphrases by lexical substitution alone; however, normally developing children had abandoned this strategy by third grade ($F(1,268) = 3.28$, $p < .05$).
3. Language impaired children were significantly less proficient at recognizing paraphrases at each grade level than normally developing children ($F(1,88) = 14.06$, $p < .001$) were. As was the case with paraphrase production, language impaired fifth and seventh graders had comprehension scores that were essentially the same as those of normally developing third graders, and language impaired third graders scored slightly below normally developing first graders.

An error analysis indicated that the paraphrase strategies of language impaired children were qualitatively different as well. First, language impaired children simply repeated the target sentence as a paraphrase strategy more often than normally developing children did. (Excluded from consideration were instances in which the child repeated the stimulus sentence in order to help himself remember it.) Sometimes a child knew that mere repetition was not a correct response but could think of nothing else to do. Not only did some children indicate either verbally or non-verbally that this was the case, but some children would add contrastive stress to one of the words in the repeated sentence (e.g. The large apple was eaten by the rabbit). This suggests that they knew some change in form was in order, but couldn't think of how to accomplish this lexically or syntactically, and thus resorted to a phonological strategy of stress placement. Other times a child seemed to consider both repetition, and lexical substitution to be valid paraphrase strategies. Perhaps for these children "paraphrase" was a more inclusive concept, a concept which meant "same in meaning" only, without any consideration of form. That is, they did not distinguish between equivalence and equality.

Second, language impaired children produced antonymic responses far more often than normally developing children did. The antonymy resulted from syntactic rearrangement (Bill took Joan a thin valentine = Joan took Bill a thin valentine) or from lexical substitution (The thin girl fell down last week = The fat girl fell down last week). As was the case with repetition, some children realized that their substitutions and rearrangements did not result in producing sentences which

ED 838/12/77

were semantically equivalent to the stimulus sentence. It is likely that word finding difficulties caused some of these antonymic substitutions (a number of the language impaired children had been diagnosed as having word finding difficulties). Thus, the children knew that repetition was not an adequate paraphrase strategy and therefore attempted a strategy of lexical substitution; however, they could not think of a synonym to use in the substitution. The children were more likely to realize that a lexical strategy had been unsuccessful than they were to realize that a syntactic strategy had been unsuccessful. That is, they were more likely to detect the error of The fat girl fell down last week than of Joan took Bill a thin valentine. A child's inability to detect antonymic rearrangement often seemed to result from "lexical identity" strategy: if the sentences have the same words, then they must have the same meaning. This was borne out in both the Production and Recognition Tasks.

Third, a few instances of a strategy of "preservation of quantity were observed in the recognition task. The children who used this strategy rejected The dirty cart was pushed by the mailman as a paraphrase for The mailman pushed the dirty cart because the first sentence was longer than the second.

These three qualitative differences in strategy would have a detrimental rather than a beneficial effect on normal linguistic development. First, if a child simply repeats a sentence rather than attempting to exchange lexical items or to rearrange the elements in the sentence, he not only misses an opportunity to practice these strategies, but he also misses an opportunity to reinforce his awareness of the arbi-

ED 838/12/77

trary relationship between meaning and its expression. Second, the "lexical preservation" strategy is closely related to simple repetition in that this strategy blocks the opportunity to build vocabulary through lexical substitution and to develop syntactic flexibility through syntactic rearrangement. In addition, this strategy can result in antonymy rather than paraphrase, thereby lessening the effectiveness of context as a facilitator of language development. Antonymy would alter the network of presupposition and expectation inherent in the discourse. Finally, a strategy of "preservation of quantity" is an inappropriate strategy which is detrimental to normal language development because it focuses on non-linguistic factors rather than linguistic factors.

Thus, language impaired children do exhibit paraphrase strategies which are qualitatively as well as quantitatively different from those of normally developing children, and these deviant paraphrase strategies do tend to hinder rather than promote normal linguistic development.

Future studies of paraphrase should be naturalistic (the main limitation of this study is that it is not naturalistic). A more meaningful assessment of paraphrase skills could be obtained in natural communication situations. It is likely that we might find other paraphrase strategies in addition to the five observed in this study (i.e., repetition, repetition with phonological stress, lexical substitution, syntactic rearrangement, and a lexical-syntactic combination); for example, we might also observe gesturing. A naturalistic study would enable us to observe the pragmatics of paraphrase, we could determine not only how children paraphrase but the conditions under which they would be likely to paraphrase.

ED 833/12/77

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ED 833/12/77